NUMBERLAND NIGHTWATCH
LEARNING

Solve the mysteries of a faraway kingdom by factoring numbers

(ages 8 and up)

by Kendall Brown
Requires: ATARI BASIC Language Cartridge

Cassette version (1)	ATARI 410 or 1010 Program Recorder
(APX-10261)	16K RAM
Diskette version (1)	ATARI 810 or 1050
(APX-20261)	Disk Drive

Edition A

CONSUMER-WRITTEN PROGRAMS FOR

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NUMBERLAND NIGHTWATCH

by

Kendall Brown

Program and manual contents   1983 ©Kendall Brown

Distributed By

The ATARI Program Exchange
P.O. Box 3705
Santa Clara, CA 95055

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Introduction

OVERVIEW

In a distant region of the kingdom of Numberland is a small outpost of scholars, gathered together in a castle to ponder mathematical problems. The king has charged them with solving a baffling mystery. When night falls and the kingdom is quiet, a strange phenomenon begins. Numbers form in the atmosphere and fly across the sky. They take with them some of the kingdom's valuable energy. To stop them, you've built a generator and a pulsar, and now you have to bring the menacing numbers under control.

The scholars have found a way to stop the numbers and return the energy to the kingdom's atmosphere. You're in charge--just use your joystick to stop the numbers over the generator at the right of the screen. Then race to the pulsar at the left to set up a factor of one of the invaders. As the number flies to the left past the pulsar, fire the factor at the number. Then repeat with another factor--and sometimes more than two. Try it--it works! The kingdom is jubilant.

Before you begin play, take some time to look at the screen display and learn where the pulsar and the generator are. Read the section of this manual on Definitions to learn what mysterious forces you have to master. It's a kingdom like none you've ever seen!

Managing the generator and pulsar is no easy task. Learning to manipulate the energy forces takes practice. Choosing factors quickly (by adding digits, spotting numbers within numbers, and other factoring tricks) is more valuable as you advance to the higher levels. Hitting a flying number from the pulsar takes concentration, and an acquired technique. So prepare yourself for a test of reflexes, quick wits, and arithmetic skill.

REQUIRED ACCESSORIES

    ATARI BASIC Language Cartridge
One ATARI Joystick Controller

Cassette version

    ATARI 410 Or 1010 Program Recorder
16K RAM

Diskette version

    ATARI 810 or 1050 Disk Drive
16K RAM

CONTACTING THE AUTHOR

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Denver, Colorado .80210

Getting started

LOADING NUMBERLAND NIGHTWATCH INTO COMPUTER MEMORY

1. Insert the ATARI BASIC Language Cartridge into the cartridge slot of your computer.

2. Plug your Joystick Controller into the first controller jack of your computer console.

3. Turn up the volume on your TV.

4. If you have the cassette version of NUMBERLAND NIGHTWATCH:

a. Have your computer turned OFF.

b. Turn on your TV set.

c. Insert the NUMBERLAND NIGHTWATCH cassette into the program recorder's cassette holder and press REWIND on the recorder until the tape rewinds completely. Then press PLAY to prepare the program recorder for loading the program.

d. Turn on the computer while holding down the START key.

e. When you hear a beep, release the START key and press the RETURN key. The first part of the program will load into computer memory.

f. Press the RETURN key again, and the second portion of the program loads into computer memory and starts automatically.

If you have the diskette version of NUMBERLAND NIGHTWATCH:

a. Have your computer turned OFF.

b. Turn on your disk drive.

c. When the busy, light goes out, open the disk drive door and insert the NUMBERLAND NIGHTWATCH diskette with the label in the lower right-hand corner nearest to you. Close the door. (Use disk drive one if you have more than one drive.)

d. Turn on your computer and your TV set. The program will load into computer memory and start automatically.

e. The first display screen appears, as follows:

　　　　NUMBERLAND
　　　　NIGHTWATCH

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　　　　KENDALL BROWN

Figure 1　First display screen

The program has NOT finished loading until the Numberland outpost appears on the screen.

The playing field

Figure 2 shows the scholars' outpost with some of its features labeled. The definitions below help you understand the parts of the scene. Look through them before you begin to play.
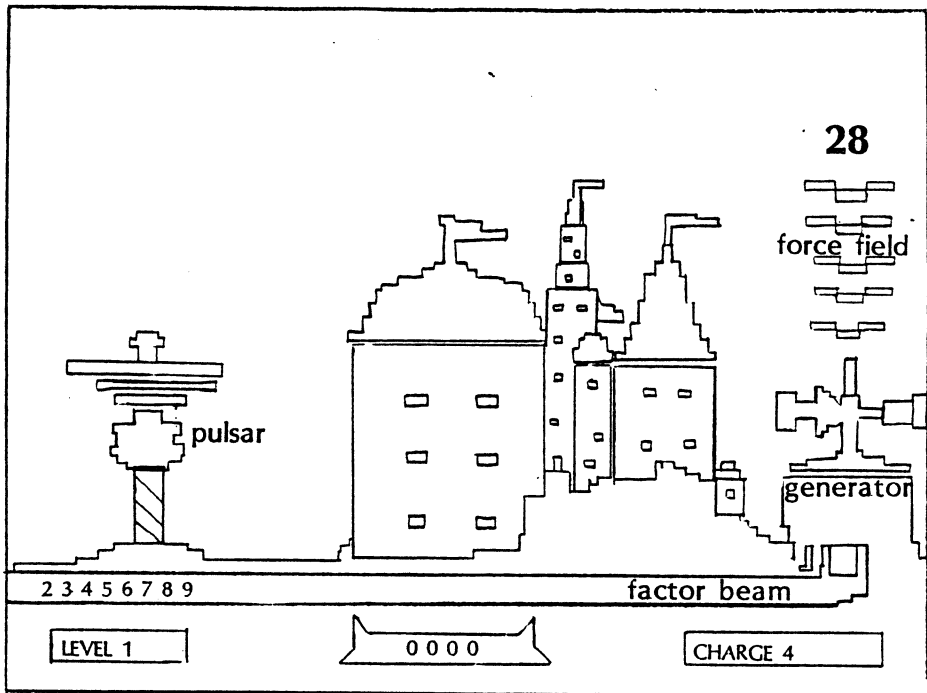
Figure 2   The game screen

TARGET - a number thát flies .across the upper part of your screen in either direction (28 in Figure 2). Reducing these numbers and returning their energy to the atmosphere wins you points.

GENERATOR - a device that generates both a factor beam and force fields.

FACTOR BEAM - a red stream of energy emitted from the bottom of the generator. The beam attracts targets to the generator, and transfers energy from the generator to the pulsar.

FORCE FIELD - a wave field emitted from the top of the generator. These fields hold targets frozen in the sky while you set the pulsar. One force field can hold a target for about 19 seconds.

PULSAR - a device that fires factor energy pulses. You can adjust its factor energy settings (displayed in a row below the pulsar).

FACTOR - a number (from 2 through 9) used to set the pulsar — also, a number that divides a target evenly (leaving no remainder). For example, 9 is a factor of 81; 5 and 4 are factors of 20. Setting the pulsar to a factor of the target (especially when the target is large) requires some special skill. See the section on FINDING FACTORS for more information.

CHARGE - a unit of energy used by the generator to produce a force field and energize the pulsar. The generator holds a maximum of six charges. The number of remaining charges is displayed on your screen. When the number is lighted red, that charge is currently in use. If you use all six of the charges without winning a recharge (by completely reducing a target), the game ends. The factor beam doesn't affect charge supply.

Playing the game

Your objective in NUMBERLAND NIGHTWATCH is to reduce targets by factoring them. If the number 45 is a target, you can reduce it to its factors of 9 and 5. This returns energy to the atmosphere. Each factor you remove adds its value to your score.

You start with six charges to reduce a target completely (to 1) and win a new charge supply. Here's what you do:

1. Press the START key. Targets fly from right to left across the sky on your screen. Moving the joystick toward you (away from the screen), catch a target with the factor beam and pull it back over the generator. You see the target turn around to come back to the right side of the screen. A force field leaps from the generator and holds the target. Now it's safe to release the joystick.

2. Choose a factor of the target from the numbers at the lower left of the screen, below the pulsar. Move the joystick to the right and left until your choice is highlighted.

3. When you've decided on a factor, push the joystick toward the screen (away from you). This releases the number from the force field. It flies from right to left. As it flies directly over the pulsar, press the joystick button to fire!

4. If you set the pulsar correctly, hitting the target blows the factor into the sky. For example, if the target number is 48, you set the pulsar at 6. Then if you fire at the target and hit it squarely, a 6 flies up. The new target (the result of the division, the 8 in the example) flies to the right, hoping to escape. Quickly pull the joystick back toward you to catch the target with the factor beam. Then repeat the procedure.

5. If the target doesn't contain the factor you set,

a hit multiplies the target and destroys the pulsar's energy. You must decide whether to catch the fleeing target or start again with a new one. Either way, you must reenergize the pulsar. First pull it back and catch it in the field, and then reenergize it by moving the joystick toward the screen.

6. If you miss the target, it jumps back, then quickly darts forward. This gives you another chance to fire at it. You can fire as often as you have to, but hitting a missed target is tricky.

7. After you reduce a target to one digit, you should hit it with itself as a factor. This wins you a fresh supply of six charges. Using all six charges without winning more ends the game.

8. Play normally begins with the two digit targets of level 1. Your first recharge after earning 50, 150, 300, or 500 points increases the level of play. Higher levels mean larger targets.

9. As long as you're not in the middle of reducing a target, you may leave the controls without affecting your charge or score. You can resume play at any time.

Special keys

Each of the following keys on your computer has a special function in NUMBERLAND NIGHTWATCH.

Press the SELECT key to change the level on which play begins. The level number is displayed on the lower left of your screen, as in Figure 2. Normally, play begins on level 1 (small targets) and advances through level 5 (large targets) as your score climbs.

Press the START key to move targets across your screen to begin play. After a game ends, press this key to start a new game.

DO NOT PRESS THE SYSTEM RESET KEY. It clears your computer's memory and you have to reload the program.

Improving your skill

CONSERVING CHARGE

Once energized, the pulsar can fire endless energy
pulses. However, you kill the pulsar's energy
when you:

- hit a target with the wrong factor.

- allow a target (or any part of it) to fly off
either side of your screen.

- pull a target into a force field.

- reduce a target to one and win more
charges.

Learn to make the most of each charge. After you
remove a factor, quickly catch the fleeing target,
but "juggle" it for a moment with the beam before
you pull it to another force field.

If you can remove the pulsar's current factor
again, release the target and fire. You can often
reduce a target (even on level 5), using only three
or four charges, once you learn to reuse a pulsar
setting.

SAVING MISSED TARGETS

Remember, missed targets jump back, then dart
forward. There are two ways to hit them. First,
fire when they pass over the pulsar again.

Second, to time your shot better, catch the target
with the beam. Pull it back and let it go as you're
ready to fire. The pulsar doesn't fire if a target
is flying or being pulled to the right. (And don't
forget that allowing any portion of the target to
leave the screen kills the pulsar's energy.)

Finding factors

Improving your skill with factors can bring up your scores.

After leaving level 1, correctly setting the pulsar's factor value to reduce the targets takes more than basic math skills. Time is short and the targets are larger.

Numbers (of all sizes) containing a particular factor often have something else in common. The following factoring rules might seem confusing at first, but once you learn to use them, you'll be blasting factors from targets of every size.

<u>Two</u>: Any even number contains a factor of 2.

<u>Three</u>: Add the number's digits together. If the sum is a multiple of 3, the number contains a factor of 3.

<u>Four</u>: Look at the number's last two digits (the 10's and 1's place digits) and ignore the rest of the number. If this two-digit number is a multiple of 4, the original number contains a factor of 4.

<u>Five</u>: Any number ending with a 5 or 0 (1's place digit) contains a factor of 5.

<u>Six</u>: Any even number with a factor of 3 contains a factor of 6.

<u>Eight</u>: Look at the number's last three digits and ignore the rest of the number. If this three-digit number is a multiple of 8, the original number contains a factor of 8.

<u>Nine</u>: Add the number's digits together. If the sum is a multiple of 9, the number contains a factor of 9.

When playing the higher levels, the rules for eight and nine are very useful. The rule for eight

requires knowing three digit multiples of eight.
Try to find a way around this!

Review Form

We're interested in your experiences with APX programs and documentation, both favorable and unfavorable. Many of our authors are eager to improve their programs if they know what you want. And, of course, we want to know about any bugs that slipped by us, so that the author can fix them. We also want to know whether our instructions are meeting your needs. You are our best source for suggesting improvements! Please help us by taking a moment to fill in this review sheet. Fold the sheet in thirds and seal it so that the address on the bottom of the back becomes the envelope front. Thank you for helping us!

1. Name and APX number of program.

   Numberland Nightwatch (261)

   _____

2. If you have problems using the program, please describe them here.

   _____

   _____

   _____

3. What do you especially like about this program?

   _____

   _____

   _____

4. What do you think the program's weaknesses are?

   _____

   _____

   _____

5. How can the catalog description be more accurate or comprehensive?

   _____

   _____

6. On a scale of 1 to 10, 1 being "poor" and 10 being "excellent", please rate the following aspects of this program:

   _____ Easy to use
   _____ User-oriented (e.g., menus, prompts, clear language)
   _____ Enjoyable
   _____ Self-instructive
   _____ Use (non-game programs)
   _____ Imaginative graphics and sound

7. Describe any technical errors you found in the user instructions (please give page numbers).

_____

_____

_____

8. What did you especially like about the user instructions?

_____

_____

_____

9. What revisions or additions would improve these instructions?

_____

_____

_____

10. On a scale of 1 to 10, 1 representing "poor" and 10 representing "excellent", how would you rate the user instructions and why?

_____

_____

11. Other comments about the program or user instructions:

_____

_____

_____

From

_____

_____

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